

r'ATENT COOPERATION TREATY

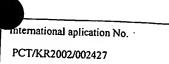
PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Artcle 36 and Rule 70)

Applicant's or agent's file reference			
OP020135	FOR FURTHER ACTION	Dieminiation	onofTransmittalofInternationalPreliminary Report (Form PCT/IPEA/416)
PCT/KR2002/002427	International filing date(day/mor	nth/year)	Priority date (day/month/year)
International Patent Classification (IDC)	24 DECEMBER 2002 (2	4.12.2002)	08 APRIL 2002 (08.04.2002)
International Patent Classification (IPC) of IPC7 G01N 33/574	or national classification and IPC		.:
Applicant BIOINFRA INC. et al			
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and is transmitted to the applicant ac This REPORT consists of a total of			ational Preliminary Examining Authority
IX IIIS report is also accompanie	dh-ADDWR		
70.16 and Section 607 of the A	dministrative Instructions under	the description, ing rectification the PCT).	claims and/or drawings which have been s made before this Authority (see Rule
These annexes consist of a total of This report contains indications relati			
	ng to the following items:	•	
I X Basis of the report II Priority			•
III Non-establishment of op IV Lack of unity of inventio	inion with regard to novelty, invent	entive step and i	ndustrial applicability
V X Reasoned statement undicitations and explanations VI Certain documents cited	er Article 35(2) with regard to no s supporting such statement	velty, inventive	step or industrial applicability;
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te of submission of the demand			
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	Authorized o	Hicer	
Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon Republic of Korea	302.701	Weon Hye	BOILIN





	regard to the elements of the international application:* the international application as originally filed	
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X		
	the description:	
	pages <u>1-24</u>	
1	pages	, as originally filed , as originally filed , filed with the demand
	, filed with the letter of	, med with the definatio
1 2	the claims: pages _ 25-29	
		, as originally filed
	pages , as amended (togeth	er with any statment) under Article 1
	nages 50 , filed with the letter of	, filed with the demand 18/06/2004
	he drawings:	
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2. With re	egard to the language all the clamana.	
the inte	egard to the language, all the elements marked above were available or furnished to ternational application was filed, unless otherwise indicated under this item.	this Authority in the language in which
These	elements were available or furnished to this Authority in the following language	
l l t	ne language of a translation furnished for the purposes of international search (under	English which is
X t	ne language of publication of the international application (under Rule 48.3(b)).	Rule 23.1(b)).
	ne language of the translation furnished for the purposes of international preliminary	
_	egard to any nucleotide and/or amino acid sequence disclosed in the internation nary examination was carried out on the basis of the sequence listing: ontained inthe international application in written form.	al application, the international
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57 116	amendments have resulted in the cancellation of:	
FZ	the description, pages	
<u>X</u>	22	
i.	the drawings, sheet	
	S report has been all the	
go	s report has been established as if (some of) the amendments had not been made, s beyond the disclosure as filed, as indicated in the Supplemental Box(Rule 70.2(c)).*	since they have been considered to
* Replacement in this opinion and 70.17).	nt sheets which have been furnished to the receiving Office in response to an invitatio ion as "originally filed." and are not annexed to this report since they do not con	on under Article 14 are referred to tain amendments (Rules 70.16
* Any replace	ment sheet containing such amendments must be referred to under item I and annex	ed to this report.



International aplication No. PCT/KR2002/002427

V. Reasoned stater citations and ex	nent under Article 35(2) with regard to novelty, inventive step planations supporting such statement	or industrial applicability;
1. Statement		

1. Statement				
Novelty (N)	Claims	1-21		
	Claims			YES
Inventive step (IS)	Claims	1-21	- 2	NO
	Claims			YES
Industrial applicability (IA)	Claims	1-21		NO
	Claims			YES
				NO

2. Citations and explanations (Rule 70.7)

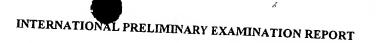
Reference is made to the following document from the International Search Report (ISR). D1: KR 2000-0052802 (patent family member: EP 934409)

1. Novelty & Inventive step

Objects of the present invention are to provide a system (claims 1~11) and a method (claims 12~20) for detection of cancer, by generating a serum proteome standard by an image mining technique, and to provide biomarkers specific to breast cancer (claim 21). The present invention (claims 1 & 12) comprises input means/step for inputting serum proteome; proteome standard production means/step; proteome comparison means/step; disease analysis means/step; and output means/step.

D1 is considered to represent the most relevant state of the art for the subject matter of present invention with respect to identifying and characterizing changes in proteomes by a computer-based system, which aligns a new proteome image with the master composite image that is corresponding to the proteome standard of the present invention. It relates to methods and computer systems for analyzing cell proteomes to characterize proteins that are up- or down-regulated under different conditions, such as under abnormal(diseased) or compound-treated conditions.

- Continued in Supplemental Box



international aplication No.

PCT/KR2002/002427

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

Box V

However, the subject matters of claims 1 & 12 of the present invention are different from what D1 discloses in that an image mining technique is introduced to the proteome analyses of the present invention, wherein the proteome standard is generated by an image mining tool, which employs a genetic algorithm, a support vector machine, and a fuzzy rule-based classification means is also used for analysis and prognosis of disease states. None of the available documents, either alone or in combination, discloses such an introduction of an image mining technique to proteome analysis, which appears non-obvious to a person skilled in the art.

Claims 2-11 and claims 13-20 are dependent on claim 1 and claim 12, respectively. Therefore, the system to which claims 1-11 relate and the method to which claims 12-20 do are believed to be novel and to involve an inventive step as compared with prior arts fulfilling the requirements set forth in Article 33(2)&(3) PCT.

The subject matter of claim 21 is biomarkers comprising a novel proteome pattern specific to diagnosis of breast cancer, which has been generated by the method of the present invention. Claim 21 thus complies with the requirements set forth in Article 33(2)&(3) PCT.

2. Industrial applicability

Present invention relates to a computer-based system, a method and biomarkers for detection of cancer. There is no reason to negate the industrial applicability of this invention. Consequently, claims 1-21 appear to meet the requirements of Article 33(4) PCT.

Fuzzy technique; and

a rule-based classification step of arranging and normalizing the results obtained at the data mapping step, and thus generating a final rule base.

5 21. (amended) A biomarker or biomarkers for diagnosis of breast cancers, comprising a proteome pattern, wherein said proteome pattern is one or more selected from spots listed in Table 1.

22. (deleted)